Early Journal Content on JSTOR, Free to Anyone in the World

This article is one of nearly 500,000 scholarly works digitized and made freely available to everyone in the world by JSTOR.

Known as the Early Journal Content, this set of works include research articles, news, letters, and other writings published in more than 200 of the oldest leading academic journals. The works date from the mid-seventeenth to the early twentieth centuries.

We encourage people to read and share the Early Journal Content openly and to tell others that this resource exists. People may post this content online or redistribute in any way for non-commercial purposes.

Read more about Early Journal Content at http://about.jstor.org/participate-jstor/individuals/early-journal-content.

JSTOR is a digital library of academic journals, books, and primary source objects. JSTOR helps people discover, use, and build upon a wide range of content through a powerful research and teaching platform, and preserves this content for future generations. JSTOR is part of ITHAKA, a not-for-profit organization that also includes Ithaka S+R and Portico. For more information about JSTOR, please contact support@jstor.org.

way up, and above this of a light yellow compact marl. It was evidently, at one time, continuous with some bluffs of the same character a mile south of it. The 30th we encamped at Monument Station, which receives its name from a number of columns of the same character as Castle Rock. There is a company of Infantry stationed here under command of Brevet. Lt. Col. Cunningham. As I rode up in front of Col. Cunningham's quarters, the first thing that met my eye was a pile of fossil vertebræ, and the jaw of an immense Saurian. The jaw is over three feet long and is well preserved. The Colonel has already dug out sixty vertebræ. He estimates the length of the reptile at thirty feet. He was lying in a stratum of brick-red clay, below which is the shale and above the marl, which is described as forming Castle Rock. By hunting in the same locality I succeeded in finding a large number of shark's teeth, and the tooth of a Saurian. On the day following I found a place where the shale I have spoken of was uncovered, and on it's surface picked up a quantity of fishes vertebræ, and some teeth. I found also the jaw of some small reptile, and just as I was returning, stumbled upon a pile containing about two bushels of fragments of fossil bone. The bones were badly broken up, but still sufficiently preserved to show that some unfortunate Saurian had been buried there. Between this place and Fort Wallace I obtained numerous specimens of fishes' vertebræ, and three vertebræ of a smaller Saurian. I am informed by Ass't Surgeon Turner, U. S. N., that he has forwarded to the Museum of the Academy of Natural Sciences, at Philadelphia, a very perfect specimen of a Saurian, which he estimates to have been fifty feet long. It was found in the blue shale of which I have spoken. Fort Wallace is situated near the extreme western boundary of Kansas, within two or three miles of the Colorado line. The post is built of a light yellow marl, which may be readily sawed into blocks with a common hand-saw. A variety of Spanish Dagger (*Yucca*) is very abundant here, and is now in bloom, as is also the Mammilaria macromeris, which has a beautiful rose colored blossom, and the prickly-pear is beginning to put forth its large yellow blossoms.

We have in camp three young antelopes caught upon the march. They have become quite tame. The black-tailed deer is found in this vicinity, which is about as far east as it ranges. I have slighted the centipedes and the rattlesnakes, but it is not because they are scarce. One of the officers shook a large centipede from his boot the other morning, and nearly every one can produce a handful of rattles as proof that rattlesnakes are becoming scarce.—Dr. G. M. Sternberg, U. S. A.

MICROSCOPY.

A NEW PROCESS OF PREPARING SPECIMENS OF FILAMENTOUS ALGÆ FOR THE MICROSCOPE.—The working microscopist well knows how little really valuable information, of a practical character, is to be found in books professing to treat of the subject of preparing and mounting specimens of the lower families of Algæ, so as to exhibit in a satisfactory manner the characters which distinguish them in a generic or specific manner. This remark also applies, although with not so much force, to other branches of microscopic manipulation, as there are really many valuable hints to be found in the books descriptive of preparing woods, bones and other hard tissues, and the subject of injecting has received much attention, so that the labors of the student are very materially lightened by the perusal of the works of the German, English and French manipulators. But in microscopic botany our information is woefully deficient and old. The microscopist is therefore driven to the necessity of experimenting, and, as a consequence, discovering for himself. As the students of the lower families of plants are at the present time somewhat numerous, the result has, of course, been the development of many extremely valuable processes tending to simplify their study; but it is to be regretted that, whether from extreme modesty, or perhaps from some other cause, such as the fear that their processes are not new, or would not be appreciated, these gentlemen have, unfortunately, failed to publish. It cannot be denied that this mode of action is wrong, and that no one has a right to withhold the knowledge he may possess on such points. For my part I have taken every opportunity of publishing, or otherwise making known, any little point in manipulative microscopy which I have found of value, and which I have thought would in any way be of use to others.

For years I have been engaged in the study of the lower families of Algæ, more especially the Diatomaceæ, and for the purpose of eliminating their characters, I have at different times experimented upon the preparation and preservation of these beautiful forms, so as to be enabled at any future time to exhibit them in the best manner for showing their peculiarities. I have already published processes for obtaining the siliceous loricæ of Diatomaceæ from guano, and also several modes of collecting, preparing and mounting for the microscope these organisms. It is now my intention to make known a process I have contrived by means of which the filamentous forms of Diatomaceæ, Desmidiæ and Confervæ, can be preserved and mounted so as to show many of their characters, although, as is always the case, something has to be sacrificed. However, it is in my opinion the best process that has been as yet made public, and even if it is of no other value, I trust it will have the effect of drawing from others records of their modes of manipulation, so that searchers after truth, like myself, may learn something of value to them in their investigations.

It is well known that the Desmidiæ and the filamentous Algæ, generally found growing in fresh water, have never been preserved in a satisfactory manner, and this has arisen from the fact that their cell-walls are composed of a substance of a perishable matter, and will not, like that of the Diatomaceæ, which is siliceous, bear boiling in corrosive liquids so as to remove the always readily decomposable cell-contents, and leave the object clean and transparent, while the Diatomaceæ, after such treatment as boiling in acid can be mounted in Canada balsam, by means of which they are presented in such a state that the finest sculpture of their siliceous epidermis can be observed, and they are at the same time held within a preservative substance which does not permit of their movement and consequent danger of fracture; the Desmidiæ and the filamentous Algæ in general cannot be preserved so, and several means have been devised to keep them, all of which have been to a certain extent unsatisfactory. Besides there are some Diatomaceæ which grow in chains, as the Fragillaria, the frustules of which are united by means of a substance that will not bear the contact of acid necessary to remove the cell-contents; and again there are others, as the Gomphonema, which are attached to submerged substances by means of a flexible stalk called a stipe, which would dissolve under the same circumstances. Such Diatomaceæ have been generally merely placed in a cell formed of cement or other suitable substance, and preserved in a preservative solution consisting either of pure distilled water, or water containing creosote, camphor, or other substance possessing antiseptic properties. And the same plan has been followed with the filamentous Desmidiæ and other Algæ, but such specimens become, after a short time, unsightly. It is true that the general outline is preserved, but the cell-contents either contract or change in form and color, so as to injure the appearance of the specimen, or the same effect is brought about by the colored matter generally accompanying gatherings of such organisms.

My plan then is essentially as follows: Supposing I have a gathering consisting for the most part of a filamentous Desmid, as *Desmidium Swartzii*, which is a common species around New York city at certain periods of the year, I place a small quantity of it in a test tube, and pour over it, so as to about quarter fill the tube, a strong solution of the so called "chloride of soda," which I prepare for the purpose in the following manner. Those, however, who have not the facilities for doing so, or do not desire to prepare their own solution, can use that sold by the apothecaries under the name of "Labarraque's Solution of Chloride of Soda," which is, however, rather weaker than it is best often to use. My solution I make by adding to the water a large excess of the common chloride of lime of the shops, which is fresh and has not stood for a time in an open vessel exposed to the air, by means of which much of it becomes decomposed and useless for this purpose. After stirring well, and then allowing such a mixture to stand for a short time, until all that will not dissolve falls to the bottom, I pour off the clear liquid and add to it a concentrated solution of carbonate of soda, the common "washing soda," until the white precipitate of carbonate of lime, or chalk, ceases to form. The clear solution is now poured off preferably through a good paper filter, and preserved in a well-corked bottle, away from the light. This is my solution of chloride of soda. The Alga is now boiled for a few minutes in the solution, but not so violently or for such a length of time as to break up the filaments, and then well and thoroughly washed with pure filtered or distilled water. It can thereafter be preserved in weak spirits, or, what I have found still better, water to which a few drops of creosote have been added. Thus the growth of fungi is prevented, which would otherwise mar the appearance of the object very materially.

To mount such bleached specimens, I proceed as follows. Those which have been set aside in creosote water may be, of course, put up permanently in that liquid, but those which have been preserved in spirits, I prefer to mount in creosote. A cell is procured of any suitable substance, as black varnish, gold size, marine glue, or other cement which will withstand the action of water, and a fragment of the Alga being placed in it in the usual manner, water is added, and a fine glass rod or stick of wood just moistened with creosote brought in contact with the liquid. In this way the water becomes sufficiently impregnated with the preservative to insure its antiseptic action. The cover is then put on and cemented down. Thus we have a specimen of the Alga in a transparent condition, all colors which interferes with the observation of many points of structure being removed. In place of creosote water I have made use of camphor water, and found it to answer admirably. The camphor water I make by using distilled water, and just before placing on the cover, putting in a grain of gum camphor, which then remains in the cell, and if near the edge does not mar the appearance of the object in any way. Specimens can also be mounted in the glycerine-jelly of Mr. Lawrence, which preservative I find to be excellent for all kinds of Algæ and vegetable preparations generally; in fact after a little practice, the manipulation of it becomes almost as easy as that of balsam, and air bubbles, those torments of beginners, are the exception and not (as is the case for a long time generally after a tyro begins mounting microscopic objects) the rule. Of the use of this jelly, or rather a modification of it, I shall at some future time have more to say.—ARTHUR MEAD EDWARDS, *New York*.

ANSWERS TO CORRESPONDENTS.

J. T., Tabor, Iowa.—The Land and Fresh-water Shells of the United States, by Binney, Prime and Tryon, published by the Smithsonian Institution, will be the most modern works for reference. Descriptions of Unios, etc., are mostly contained in the writings of Isaac Lea, of Philadelphia. The best way to procure specimens for your college, is to make good collections of your native animals and plants, and then exchange them with other parties. We will announce such desires to exchange free of cost.

E. G., Albion, Wis.—Your specimens considered as *Ophioglossum reticulatum* Fries., does not seem to differ from dwarf and depauperate specimens of *O. vulgatum*, nor do the reticulations differ in any way that I can perceive, on comparison with British or with New England forms. Never having seen either a description or authentic specimens, such as you say were collected by Prof. Kumlein, I have no means of speaking with any certainty. The same style of reticulation occurs in *O. bulbosum* Michaux, a Southern variety; and as the species is very variable, it is probable that *O. reticulatum* is but a local variety, though the botanical authority of Fries is of great moment regarding any plant which comes under his observation.—J. L. R.

B. F. L., Concordville, Pa.—To your query, "How long will spiders live without eating?" we would reply that adult spiders, like adult six-footed insects, will fast for months, though when young and growing they are usually voracious. How your young spiders lived twenty days after hatching without food, we do not understand, though we have observed that the young of the Moose tick lived nearly a month without food after hatching.

The Tarantula is confined to the Southern States, though the Editors of the "American Entomologist" report the occurrence of *Mygale Hentzii* in Missouri. It may possibly occur in Eastern Indiana. Spiders are well known to be cannibals, the females